

ABSTRACT

A first sin phase voltage representing the rotational angle of a resolver is derived from the sum of a rotational angle voltage involving a temperature component and a bias voltage. The rotational angle voltage and the bias voltage are calculated by calculating the values of the maximum peak point ($\theta=90$ degrees) and the maximum bottom point ($\theta=270$ degrees) of the rotor and then by subtracting them or adding them, respectively. Subsequently, a transformer efficiency $K(T)$ and a phase difference $\alpha(T)$ which involve temperature components therein are calculated from the rotational angle voltage, while an impedance $R(T)$ of a common earth wire and another phase difference $\beta(T)$ which involve temperature components are calculated from the bias voltage. The rotational angle can be calculated by putting these parameters into equations for calculating the first sin phase voltage. As a consequence, it becomes possible to detect the rotational angle of the rotor accurately without suffering the influence of temperature.